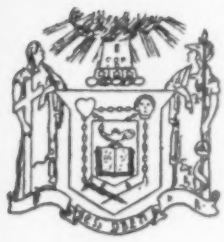
THE PHI DELTA KAPPAN



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"SMALL men are apologetic and give excuses for being on the earth and reasons for staying here so long. Not so the great souls! Their actions are regal, their language oracular, their manners affirmative!"— *Quotation from Alpha-Lambda Chapter News Letter.*

RESEARCH

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Professional Interfraternity Conference

The Phi Delta Kappan

THE OFFICIAL NATIONAL ORGAN OF PHI DELTA KAPPA

CONTINUING THE NATIONAL NEWS LETTER OF PHI DELTA KAPPA

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Professional Interfraternity Conference

Twenty-seven national professional fraternities participated in a "Preparatory Conference" at the Hamilton Hotel, Washington, D. C., on March 2 and 3, at the invitation of the Conference of Law Fraternities. The purpose of this Preparatory Conference was to consider the desirability of forming a Professional Interfraternity Conference and to inaugurate such an association if found desirable and feasible.

The participating group included representatives of Accounting, Advertising, Architecture, Chemistry, Commerce, Dentistry, Education, Electrical Engineering, Engineering, Forensic, General, Law, Medicine, Military, Pharmacy, and Science fraternities. Phi Delta Kappa was not represented because the invitation was received by the National Secretary too late for the necessary action to be taken. The report of the conference has been received, however, and also a further invitation for the fraternity to participate in future deliberations of the Conference.

The Conference was opened by Major Jarvis Butler, Sigma Nu Phi, President of the Conference of Law Fraternities. His opening address, was, in part, as follows:

"It is not only a satisfaction to greet you because we are all engaged in forwarding like high aims in the field of professional education but gratifying to address you for the moment as the spokesman for the law fraternities. Many of you have come long distances to attend these sessions and all are imbued with the intangible spirit of devotion to high ideals that binds all fraternity men to each other. It is not possible to over-appraise the importance of this conference whose conclusions may have a far reaching effect in increasing the usefulness of the professional fraternities.

Here is a meeting, I can well believe, which is an earnest of the awakened consciences of modern times. It is not a convention of remorse nor a session of sorrow nor is it a council seeking to remake the fraternity system. It is, rather, a coming together of the fraternities representative of all spheres of professional activity to apply the better attributes of each and to minimize the faults of all.

"Speaking on behalf of the law fraternities as official sponsors for the invitation, I think I may say that the call is not of the law fraternities alone but rather the desire of each organization here represented thirsting for better relationship, the advancement of a new spirit of comity, and seeking a medium for helpful co-operation. We contemplate or apprehend no invasion of the respective rights of each. We ask nothing which belongs to another and we wish only to do with you that finer, nobler thing which no fraternity can do alone. We wish to sit with you at the table of fraternal understanding and good will. In good conscience we are eager to meet you frankly and invite and offer co-operation.

"We know that our several fraternities have common origins and common ideals. Structurally, we follow organizations of men in business pursuits from which we get our ritualistic forms and to some extent our nomenclature and machinery of administration and government. To the things thus borrowed, we have added a strong force of sentiment which appeals powerfully to the maturing youth upon his admission to professional society. It is to this idealism that we look for our own internal effectiveness, and the measure in which such idealism becomes a reality determines the influence of each unit and of the fraternity itself. * * *

"Just as effective in the direction of better feeling is the consciousness that the problems of fraternity administration and of fraternity life are the same for all. All have exactly the same questions to answer and the same problems to solve. The man who is elected to an office of influence is glad to get suggestions from the experience of his predecessor. The man who undertakes a business enterprise, if he is a business man, profits by the successes or failures of others in similar undertakings. Fraternity officials and fraternity members are in exactly the same position and can well afford to learn from those formerly called rivals.

"* * * The best that is in men is brought out by association with others. In such association altruism takes the place of selfishness. Both the opportunity and the

inspiration for unselfish action are furnished by association.

"The professional fraternity has always had a more serious mission than to merely offer social activities to the undergraduate. We believe it involves the entire life of our members from the development of a professional spirit among undergraduates, through the stages wherein we supplement our schools by the encouragement of high scholarship, into the field of active practice where our standards may be carried to our aid in raising those of the profession as a whole. To such extent as possible, the mere knowledge that the practitioner is a fraternity trained man should be at once a guarantee of his steadfastness and worth, integrity and character. It should make him eligible to fill any position within his profession and create a demand for his services because of his efficiency, thoroughness and superiority—services always rendered with credit to his fraternity, to his client and to himself. * * *

"The experience of the Conference of Law Fraternities has so conclusively demonstrated the usefulness of an agency for promoting interfraternity comity and cooperation between professional groups that we unanimously recommend the most careful consideration of the proposal.

"Right here I want to say that the Conference of Law Fraternities has enjoyed the most cordial and helpful relations with the Interfraternity Conference. The studies and reports of that organization have been made freely available to us and they have sent able men to address our meetings. Being deeply sensible of the extensive work they have performed, much of which inures to our benefit, I strongly urge that it always be the policy of the professional fraternities when likewise organized to establish and maintain harmonious co-operative relations with that body.

"I have already stated that we have no issues to present and it follows that the proposal for this conference contemplates no surrendered rights or narrowed freedom of operation, or denial of aspirations. The Law Fraternities would no more ask for these than they would give. No pride need be humbled, no fraternity submerged, but we would have a mergence of minds committing all of us to that finer spirit of co-operation in forwarding the cause of the professional fraternities which we confidently believe in as helpful to the students and practitioners of any learned profession. * * *

"We are met for a service to professional education. In proportion to our belief in our cause we have the opportunity to work for its advancement. The greatest assurance of accomplishment of this end will be found in exchanges of simple honesty and directness. I hope, therefore, for the accomplishment of much good by this conference and for a unanimous sentiment for a common recognition of a useful service to our members of the present and of the future. Such an accomplishment will be an added achievement to your fraternity and to mine."

The committee on definition returned the following report which was adopted after discussion:

The Committee recommends that in the determination of what are professional ideals, the following tests shall be met:

The profession shall: (1) Be generally recognized by universities and colleges as a profession, by the creation of courses therein in separate special colleges, departments, or schools leading up to recognized degrees therein, distinct from the usual general degrees in art, science, or letters; (2) Have a recognized code of ethics generally accepted as binding upon the members thereof; (3) Recognize the duty of public service as binding upon the members thereof; and (4) Require principally mental rather than manual or artistic labor and skill for its successful prosecution.

The following categories were tentatively approved for elegibility in the Conference. Only those groups represented in the Preparatory Conference were considered, and it is expressly provided that this list is not intended as a limitation prohibiting the addition later of other categories covering fraternities which may apply for membership and which meet the specifications prescribed in the constitution:

Architecture
Chemistry
Commerce, including Accounting
Dentistry
Education
Engineering, including Electrical Engineering
Law
Medicine
Pharmacy

A provision was also recommended by the Categories Committee and adopted for incorporation in the constitution, under

which membership of a fraternity in whose profession there exists an interfraternity organization, must be approved by such professional body.

The purpose of the organization as defined in the proposed Constitution and By-laws is as follows: The purpose of The Professional Interfraternity Conference shall be the discussion of questions of common interest and the presenting to the fraternities represented of such recommendations as the Conference shall deem wise. The function of the Conference shall be purely advisory except as to such powers as may be specifically conferred upon it by its constituent members. It shall be the aim of the Conference to encourage high scholaship, professional research, advancement of professional ethics and the promotion of a spirit of comity among the professional fraternities in the advancement of fraternity ideals.

The next session of the Conference is to be held in New York on November 30, 1928. Phi Delta Kappa has been invited to attend this Conference and the Executive Committee has accepted the invitation for the fraternity.

What College Students Think with Respect to Cheating in Examination

THOMAS M. CARTER

The data in this article were derived from replies of 443 students in Albion College, scattered over a period of about four years. The students were those whom the writer has had in classes in Psychology and Education. All the students were beyond their freshman year. The data were secured in the following manner: A situation or problem relative to cheating was presented to the students. Relative to this problem certain pivotal questions were asked. The problem and the questions relating thereto remained constant. The problem was as follows:

> "Two students sitting in close proximity to each other answered the same questions in three successive examinations in the same manner. Where a mistake occurred in one it occurred also in the other."

Five questions were asked relative to the problem: (1) What is sufficient evidence to justify a professor in suspecting cheating? (2) What should a professor do when he suspects cheating? (3) What should be done with the parties involved in the act of cheating? (4) Should cheating be considered on a plane equal to that of stealing money? (5) What are the motives that lead students to cheat?

The students were told to give the matter careful consideration as the instructor had actually been confronted with such a problem as stated and wished to do the fair and wise thing, and could doubtless be aided greatly by the combined judgment of a number of students. Such a situation had confronted the writer just prior to the beginning of the investigation.)

In compiling the data it was found that many of the students did not give usable answers to each of the questions. Some students did not answer certain questions at all. Others gave answers which were incoherent or else revealed a lack of sincerity by the answers which were given. We feel, however, that a sufficiently large number of usable answers to each question were secured to give us a fairly reliable sample of student opinion.

We realize that in securing our data we could have used certain formal questionnaires which would have secured more uniform answers, but we rejected this method feeling that such would cast about the situation an air of formality and unnaturalness which would prevent our securing a free expression of student opinion.

In compiling the data we also had to use some liberty with the answers. To have repeated all the answers, word for word, would have so lengthened the report that it would not be worth publishing and but few would care to read it if it were published. There was almost an endless overlapping and intermixing of ideas contained in the answers. However, a careful study of the replies revealed the fact that they could be grouped into a few large categories without doing great violence either to language or the thought contained in the answers. Indeed much of the language in the report is the language of the students themselves.

It is interesting to note that while this report was being prepared a discussion on "Cheating in College," written by Dean Hillbrand of Dakota Wesleyan, and in which Albion College was mentioned, appeared in the December 10, 1927, issue of *School and Society*. Mr. Hillbrand discussed the manner in which 25 colleges of the North Central Association were handling the problem of cheating. Albion and Simpson colleges were referred to as having the most elaborate legislation on the subject, appearing in the student handbooks.

Question Number 1: "Would you assume from the evidence as given in the problem that one student had copied from the other?" To this question 147 gave usable answers. Of this number 125, or 85 per cent, were of the opinion that the evidence was sufficient to establish guilt. In giving the reason for so believing the students said, in substance, that such a thing might occur once but could not happen three times in succession. Seventeen students answered in the negative, stating that they did not believe that the evidence would warrant the instructor in thinking that cheating had occurred. They reasoned as follows: One who cheats would be too clever to copy word for word. They thought that the situation could easily be explained in another way; the students may have studied together or that it could easily have happened as a mere coincidence. Five students were doubtful as to the guilt or the lack of it in such a situation.

Question Number 2: "What would be your procedure, as instructor of the course, in reference to this situation?" To this question 140 students gave usable answers. Of this number 65 said that they would hold conferences with the students. Of the 65 students 30 would confer with both parties together. They reasoned as follows: The guilty one would confess in the presence of the other. The instructor by such a procedure could determine in a tactful and kind way which one actually was guilty. The guilty one would want to demonstrate good sportsmanship and, therefore, would not hesitate to confess in the presence of the one from whom he had copied. Thirty-five of the 65 students said they would confer with the parties separately. They reasoned as follows: The guilty one would confess and, if he were selected for conference first, the one not guilty would not be embarassed, and since the latter was in no wise at fault, he should be so protected. The instructor could give advice to the guilty one as to the seriousness of the offence and the punishment which would follow if such an act were repeated. The other party does not need much lecturing.

Another group, 40 students, would give another examination before revealing that anyone was suspected of cheating. Two ways were suggested in which this might be done—either the class could be reseated or the two suspected could be rigidly supervised during the test. The one doing the poorer work under these conditions would be adjudged the guilty party.

Fifteen students would note the reactions of the suspected parties. The following procedures were suggested: Change the seating arrangement and see if the phenomenon is repeated; note the general interest and attention displayed in class; if possible, repeat some questions which were given in the examination, taking for granted that the one who possessed the knowledge in the first place will have retained it and that the copier will not remember what he copied. It was interesting to note that in the replies of certain of the students were there statements of objection to this type of reasoning after it had been given. Such students argued that the work copied sometimes makes a more lasting impression than the work which has been studied, which would make such a test unfair and inadequate.

A group of 20 students would, without making further investigations, assume that the poorer student was the guilty party. They reasoned as follows: The poorer student and not the brighter would have a purpose in copying. Certain objections were found to this type of reasoning by some of the 20 students. They contended that inless the instructor has seen unmistakable evidence of superior knowledge on the part of the one as compared with the other, this line of reasoning may be faulty, for in some cases a student receives high marks by appropriating the work of other students, so that in all his reactions he is merely reflecting what other students have thought out for him. On the other hand an honest student relies upon his own ability, however poor it may be, for his entire work, and consequently does not profit by the combination of ideas.

Question Number 3: "Assuming that cheating had been proven beyond a doubt, what would be your procedure?" To this

question 233 students gave usable answers. Fourteen suggested class discussion to get an expression of the class opinion in relation to this matter. Such an expression of class sentiment against cheating and against those who practice it would, more than anything else, serve to abolish cheating. A student fears the disapproval of his classmates and will consider well the results of openly defying any law, although unwritten, which will arouse the disapproval of his fellows.

Thirty-seven students suggested conference. Twelve of these would confer with both parties involved and reprimand each of them. They reasoned as follows: The conference should impress the copier and the one from whom he copied with the seriousness of the act and with the effect such acts have on the morale of the class. The one who allowed the copying should be made to feel that he is as guilty as the one who copied, for in this respect a passive attitude toward cheating is to be condemned as much as the active. The instructor should make each one feel his personal responsibility in relation to the morale and morals of the class and of the school as a whole. Twenty-five suggested that the conference be held with the copier only. They suggested that while the conference be partly in the nature of a reprimand, something should be done by the instructor to encourage and aid the offender. They reasoned as follows: that the instructor should make the offender feel that the act may be rectified by future conduct. Knowledge of the conference should not be divulged to the other students and the instructor should promise future secrecy in the matter. It is a personal matter between the instructor and the offender. By such private conferences the instructor may come nearer to the real cause of the action and may receive a better foundation for dealing with such cases in a way so that constructive results may accrue. These students would give the offender a second chance with no penalty attached to the first offense. They reasoned as follows: The practice may not be habitual and may be easily remedied by such measures as suggested above, thus securing an admirable moral triumph in the life of the student. Harsher measures may do more harm than good by resulting in discouragement and disgrace. Such measures may prevent cheating; however they do so by setting up external inhibitions but they build no internal inhibitions. They may make the individual afraid to do evil but they do not make him love righteousness. The harsher methods may breed a resentment in the life of the individual which may be retained and allowed to grow until it breaks out in open defiance of authority though from an entirely different angle than that of cheating in classes.

Fifty-eight students suggested loss of credit. Of this number twelve were of the opinion that both the copier and the one from whom copying is done should lose credit in the course. They reasoned as follows: The one who allows his work to be copied is as guilty as the one who actually copied. Punishment to both offenders would be a severe warning to the other members of the class and would put all on a definite lookout for cheaters. The one from whom copying is done may have encouraged the other to copy due to the impression that to be copied is an act flattering to himself. Twenty-two students suggested that the copier be forced to take another examination or do some other sort of extra work as a disciplinary measure.

Three students would require an apology to the class. In their opinion such a public confession and apology would be good for the confessor and would serve as a warning to others who might be tempted to cheat.

Thirty students would refer the matter to the student council and allow that body to deal with the matter according to the rules regulating such matters. They reasoned as follows: Students know of the prevailing rules of the institutions and if they break such rules should suffer the consequences. Unless the rules are employed in all such cases they will soon cease to be regarded. In the hands of the student council all cases would be disposed of fairly with no opportunity for prejudice to play a part.

Sixteen students would refer the matter to the disciplinary committee with the understanding that the student be summarily dismissed. They gave as their reasons for so doing that such a person has an evil effect on the spirit of the class and upon the student body as a whole, and should not be tolerated by the institution. If the student is getting his work by unfair methods, presence in the classroom will be of no benefit to him, and for that reason there is nothing to be gained by allowing him to remain at college. Against the idea of dis-

missal were found the following arguments: It is a confession on the part of the institution of its inability to handle moral problems. The institution thereby admits that it has the capacity to deal only with those who are already morally perfect. Such a procedure has no corrective value. It merely passes the responsibility on to someone else, and to what authority should the college look for more competency than it can or should find within itself. If the responsibility is passed on to others it will fall into hands which are already fuller than the hands of the college authorities.

Question Number 4: "Do you think cheating in examination is of the same moral or immoral quality as stealing money and ought to be so looked upon? Explain." Only 147 students gave usable answers to this question. Of this number sixty-one said they considered the two acts equally immoral. They reasoned as follows: Cheating and stealing money are both done for the same purpose; namely, personal gain which one has not earned. Anyone who cheats in examination will steal money if he thinks he can get away with it as easily. The only difference in the two is the material stolen, but the principle is the same. In one case one is stealing money and in the other ideas. Information, like money, has been obtained at the cost of some labor by the one who possesses it and belongs to no one else by right. If one wants that which money will purchase there is as much justification for his stealing the wherewithal to buy it as there is justification for stealing the wherewithal to buy college credit.

Ten students said that cheating was less defensible than stealing money. They gave as reason for their contention the following: Where the rank method of grading is used, the student who copies cheats not only the one from whom he copies, as would be the case in stealing money, but he steals from the whole class. He makes the class average higher and thus lowers the individual mark of those who are honest. One who cheats in class not only steals but also practices deception. He poses as possessing qualities which he does not have. The one who steals money may not pose as an honest man.

Six students answered "yes" and "no." "Yes," for students who make it a habit in all their examinations all the time, and "no" for students who do a little cheating now and then in subjects which they are required to take and in which they have no interest. Wrong comes when one does not put forth an honest effort but relies upon cheating entirely.

Seventy students answered "no," meaning that they did not consider cheating in examination comparable to stealing money. They gave as their reasons for so thinking the following: Many people have gone through school and have cheated more or less on examinations, but they have gone out into the world and have made fine business and professional men, and the idea of stealing money has never occurred to them. When one steals money he is thereby taking away another man's earnings from him, whereas if he cheats in examination he may be taking something from another man but the possessions of the one from whom it is taken are not lessened. In cheating in examination one harms no one but himself. If he wants to get through college that way it is his own affair. If he steals money the one from whom it is stolen is the loser. Stealing money is usually premeditated while cheating in examination is not. When one cheats in examination he does not do it with the idea of its being seriously immoral. If cheating were as rigidly condemned by society as stealing money, then cheating would be a more serious moral weakness than it is now. Examinations tend to produce a state of excitement, and frequently the student becomes panicky so that things which are quite familiar seem to have escaped and he feels that under such conditions he cannot do justly to himself in the examination. He feels that if he had a wee suggestion from someone else that would be sufficient to restore the train of association and then he would have a fair chance. Under such conditions cheating might be thought of as on a plane with embezzlement but not comparable to stealing.

Question Number 5: "Assuming that some students in college do cheat in examinations, what in your judgment is the dominant motive for so doing." In answering this question students were told to put down as many reasons as they could think of, but if they could think of more than one, they should indicate the one which in their judgment operated the most frequently and the most powerfully. By such methods we were able to secure usable answers from each of the 443 students.

Eighty-five students mentioned fear of not passing as the dominant cause for cheating in examination. Fear of not passing is itself a result rather than a cause. Some unpleasantness dreaded by the students must adhere to the phenomenon of not passing or else it would hold no terrors for those to whom it might come. Of the 85 students 38 specified the fear of humiliation, on being unable to graduate with their class, as being the dominant motive. They said in effect that the student knows that he cannot afford the time to repeat the course nor lose the credit resulting from failure in a course. He knows that failure in even one course will so lower his scholastic average that he will not be allowed to carry an extra load to make up the work; hence, he must cheat, and by that method pass or else lose step with his fellow classmen.

Nineteen students said that fear of displeasing parents or those responsible for their education was, in their judgment, the dominant cause of cheating.

Ten students said that the fear of being thought of as stupid was, in their judgment, the biggest factor in leading students to cheat.

Thirteen students were of the opinion that fear of losing certain social privileges which would follow being expelled or even put on probation was the dominant cause leading students to cheat in examinations.

Three students put forth the idea that fear of displeasing or losing the good opinion of their professor, whom they had come to regard highly, most often lead to the practice of cheating in examination.

Two students said that the cause of cheating was most frequently a lack of courage to face squarely the facts when one really knows himself to be dull and incompetent to pass the examination.

Ninety-seven students designated the desire for higher grades as the most dominant motive for cheating in examination. The desire for higher grades appears, at first, to be the fear of not passing stated in a different way. But, as brought out by the students, a desire for higher grades affects a different group of students and a somewhat different motive is at work. Here, higher than passing grades are sought for the sake of the privileges which are purchased by high grades. Some of the privileges so obtained are the following: Eligibility to compete for interscholastic activities; eligibility for election to departmental clubs; ability to please their parents, who, in addition to extending their favor, may have offered desirable rewards for high grades. The parents may have even offered continuance in college on condition that a certain scholastic average was maintained.

Thirteen students mentioned a desire for higher grades in order to make fraternities and sororities as the dominant motive for cheating. Ten students said that a desire to help the standing of the fraternity or sorority of which students were already members most frequently led to the practice of dishonesty in examinations. Eleven students mentioned the instinct of rivalry, a desire to surpass one's classmates, as a motive powerful enough to lead many students to cheat in examination, and that in their opinion this motive most frequently led students to be dishonest in their work. Six students even mentioned patriotism or loyalty to the college as the dominant motive for cheating. They explained that such students wished their college to maintain a high scholastic average.

Laziness or unwillingness to put forth the necessary effort to do satisfactory work. This was designated as the dominant motive by 83 students. Cheating was the line of least resistance. It is easier for some students to cheat than it is to work. Such students neglect their work from day to day and hence come to the examination unprepared to pass a respectable examination. Such students prefer to remain in college because of certain opportunities which college life offers; therefore, the only way to meet the emergency is to cheat in their examinations.

Lack of proper ethical and moral standards. This cause was mentioned by 55 students. Of this 55 there were 22 who said that the cause for this lack of moral discrimination and plasticity of conscience rested upon failure in the home training. There were 18 other students who contributed this moral laxity to improper school training or improper conditions in the school. These students were of the opinion that in the overcrowded conditions in the schools of today many pupils gradually acquire the habit of cheating without any intention of doing a thing that is wrong. Under such circumstances a pupil may carelessly glance at another pupil's work

and by so doing acquire just the suggestion he needs. Half thinking that the idea is his own, he uses it. Such an act brought desirable objective consequences without arousing much, if any, subjective disturbance in the form of compunction of conscience. Thus, little by little, over a period of years, a habit of cheating is built up without the individual being aware that his conduct is in any way unacceptable. Another group of 15 students were of the opinion that the lack of moral standards sufficient to prevent the practice of cheating could be traced to the belief of college students that "everybody does it." Such conceptions lead students to believe that it is not seriously looked upon by fellow students or else it would not be so generally practiced. Since he has been told that morality is determined by custom or group sanction he cannot see cheating in examination as something that is very seriously immoral even though the practice might go counter to the teaching of a few professional moralists who are paid for their moralizing. Such students may have an aversion to reacting dishonestly under different conditions, but follows the assumption that "while in Rome" he should or at least may "do as the Romans do" and yet stay within the rules of propriety.

Thirty-five students would shift the responsibility from their own shoulders and make the professors liable for any cheating that occurred. They said that the students cheated because they disliked or had no particular respect for the professors in whose examinations they cheated. Such dislike might spring from one or more of a number of immediate causes: (1) The instructor may be too exacting and unreasonable in the amount of work assigned throughout the entire course. (2) He may administer unfair examinations; that is, the questions may deal with matters which, in the students' judgment, are of minor importance. Thus a student may be in possession of the major issues covered by the course and yet able, by honest methods, to answer but few of the examination questions. The student does not see why he should suffer because of the incompetence of the professor; hence, he resorts to a general pooling of information and by such means answers a respectable number of the professor's questions even though by so doing he may be indulging in practices which are technically called cheating. (3) The examinations may be too hard, considering the type of work called for day by day. (4) It may be the inability of the professor to teach the course so that the major lines of thought are made clear. (5) Again, cheating is more likely to take place in classes where there has been poor order and little attention throughout the semester. This lack of attention is due to the inability of the professor to teach or lecture in an interesting manner.

A group of 34 students mentioned nervousness due to the examination situation as the chief cause for cheating in examination. Of this number 20 students explained cheating as a result of nervousness by saying, in effect, that the students under such conditions lose confidence in their own preparation and in their desperation would trust the knowledge of another student even though the knowledge of the latter might be, in reality, less ample and less reliable than his own. Another group of 14 students explained the effects of nervousness as operating to prevent the student from being able to recall many things which had been thoroughly learned. Though unable to recall, a student might be able to recognize the true from the false when either or both were presented to the senses. Thus such a student would rely upon his neighbors for cues hardly conscious that he was doing anything wrong.

There were 13 students who believed that too much emphasis placed upon marks rather than on effort or actual learning in the form of human adaptations, was the chief cause for cheating in examination. Such students feel that though marks, obtained largely through examination, make up the currency of most educational institutions, they are not true symbols of educational achievements and that often an individual must neglect the pursuits that will bring him success in examination in order to follow the lines which are really educative. Thus a student, while technically cheating, does not feel that he is doing anything wrong since by so doing he is only combating a system which he conceives to be wrong.

Eleven students said that in their opinion students cheat primarily because they think it is clever to do so. Even if they were or are capable of doing otherwise they would cheat merely for the thrill of it. They get the same sort of pleasure from

cheating in examinations that a kleptomaniac gets from theft.

Another cause, closely related to the one just mentioned and also similar to "group sanction" and "incompetency of the professors" and still having some individuality of its own, is one which was mentioned by ten students and may be termed as a feeling of a lack of a community of interest on the part of students and professors. The students feel that somehow the students and faculty are arrayed against each other. To serve the interest of one is to play traitor to the other group. The student feels that if he can cheat and get away with it he is scoring one on the faculty and in favor of the students, and even if he is caught in the act he will nevertheless have the sympathy of the students and will not have done anything that will call forth the disapproval of the group to which he belongs.

In the opinion of 8 students pressure of outside interests is the main cause for cheating. A bright individual and a hard worker may have become so overloaded in work with clubs, societies, athletics, etc. that he is led to cheat in examinations. Such a student may not feel that he has seriously wronged himself or anyone else. These outside interests have so taken up his time that he has not had sufficient time to give to his class work during the semester and has been particularly handicapped in time to prepare for the examination. While others were "cramming" he was busy at these interests which were a part of the larger life and interests of the college. He was carrying out responsibilities which he had been elected to carry because he had been deemed more capable and more willing to work than his fellows. Thus the student feels that he has had an unequal chance to cope with the other students in the matter of preparation for the examination. Furthermore, the student may believe that in the participating in these outside or extra-curricular activities he has been educated as truly as those who have spent the time in the curriculum work. Since the extra-curricular work receives no credit and credit is the currency of the college, he must cheat in examination or be dropped from the institution. But in cheating he does not feel that he is doing anything really wrong or even dishonest in the larger sense of the term, but is only trying to cope with an educational situation which to say the least is imperfect if not really unfair.

In the opinion of 7 students the chief cause for cheating in examination was the educational practice of requiring certain courses of students who have no interest and can see no real benefit in such.

Five students mentioned the lack of a real and true honor system as the main cause for cheating. They believed that students would not cheat if actually put on their honor. According to the way they saw it there were really no honor systems in operation in colleges. Where such systems were said to exist a definite attitude of suspicion was exhibited toward the students by having them sign so called "honor pledges" to the effect that they had not cheated in examination. In the opinion of these five students such systems are a dead insult to those who are in the habit of practicing honesty. It were as though a store would require of all its clerks a statement to the effect that they had not stolen anything during the day and had not seen any of the other employees stealing. Moreover, such a pledge was a positive suggestion of cheating to those who were weak of will and to those who were looking for thrills. To the latter group such a system offered a double opportunity—one thrill for cheating and another thrill for lying to get out of it. In the opinion of these students an unqualified assumption that students were honest and a thorough acting upon this assumption would do more than anything else to produce honesty and prevent cheating.

Conclusions

1. There is a wide variation in the opinion of college students as to why cheating in examination is done. The opinions vary all the way from believing that the main motive for cheating is the thrill that comes from wrong doing to the belief that it is done primarily by the students who feel that in doing so they are justly defending themselves against an unfair educational system. Again the opinions vary all the way from believing that the main motive for cheating is an attempt to retain the good opinion of the professors, whom they admire, to believing that the chief cause is the contempt which the students have for their professors. Another group of students who believe that students cheat primarily because of laziness, are poles asunder from those who believe that the chief cause is overwork in other activities which the students believe are more educative than

the activities on which the examinations are held.

2. The data in this report indicates that there is no such thing as the so-called "Mind of the College Students."—an expression which seems to indicate an all-pervasive uniformity of mentality to which each individual mind looses itself upon entering college.

3. Again these data argue strongly against the opinion of the deans of twenty-five colleges in the North Central Association who believe that the main cause for cheating in college is the fact that so many college students come from high schools where cheating is common and yet very little is thought or done about it. This report would suggest that there are many motives for cheating arising out of the college situation which are just as powerful if not more so than any that might arise in high school. There also is no evidence to show that the college is making any more serious attempts nor that they are succeeding more in what they are attempting to do to cope with the problem of cheating than are the high schools. It is obvious, of course, that if the high schools succeed perfectly in their undertaking, the task of the college is made easier. But the colleges are too lacking in perfection to justify them in taking a "holier than thou" attitude toward the high schools.

4. This report can only be taken as an indication of the opinions of students as to why cheating is done in examinations. It cannot be thought of as a real revelation of the causes for cheating. It is very doubtful if many of the motives mentioned here are ever really the causes for cheating. On the other hand, there are doubtless certain causes that do operate which are not mentioned at all. Still, the report would indicate that there is enough variation in the causes leading to cheating and in the conditions under which cheating occurs to justify one in believing that the situation cannot be justly met by an automatic rule, unless the college admits that it will aim to do nothing but dispose of moral problems rather than attempt to solve them.

Psychological Factors in Character Development*

J. V. Breitwieser

A child's capacity or ability is to a great extent born with him. The direction his activities take is largely the result of environmental factors. He is good or bad largely as the result of his training. This training or education comes from the home, community and school—from all the situations to which the child is sensitive.

In order to assure the proper conduct it is necessary to begin the proper training early in life, in fact the very early experiences of the infant are either valuable or detrimental to the final behavior of the adult man or woman. This fact has been known to students of human nature in a general way, but the specific contributions of certain experiences to certain types of behavior have never been very clearly presented.

The chart presented along with this article shows in a very compact form the educational and environmental influences and their results in the adult. The numbers across the top of the chart represent the age of the individual in years. Under the ages appear the psychological terms or names usually applied to the respective six-year periods. In the upper half of the chart have been placed the favorable influences under the respective years when they usually make, or should make their appearance. On the right side of the chart have been placed the results that may be expected in the adult behavior as the outcome of these educational influences. Thus in the first year of childhood the formation of regular habits is important. This training should, of course, be continued throughout the years. In the second year the child has passed his nursing period and begins to form his eating habits, which can result in normal appetites if properly regulated or in mal-nutrition and abnormal appetites if improperly developed. In the same manner the various educational interests are presented under the respective years.

*Reprinted from *The School of Education Record*, University of North Dakota, May, 1928.

The lower half of the chart presents the corresponding evil educational or environmental influences. Their tendency is to develop the criminal.

It must be remembered that the chart represents the usual situation. There are many individual variations. Some children develop faster, others more slowly. So, if a mother or an officer intends to use the chart for the purpose of noting the particular educational interest of any age, they will have to take the individual characteristics of the child into consideration. Sanity and good behavior depend on a well-balanced training. So it will be necessary to watch all of the educational factors, beginning each in its season and continuing them until the adequate resultant is secured in the form of a habit.

This chart presents no new material, but merely presents in graphic form the already well known facts of education to social behavior for the benefit of parents, teachers, social workers and peace officers.

Data for this chart and the discussion were gathered from about 260 case records of delinquent children compared with the data for a normal group. It does not represent the details of the study but can be of value in dealing with problem cases.

The chart is practically the same as the one presented at the Annual High School Conference at the University of North Dakota, on April fifth.

Favorable and Unfavorable Influences in the Development of Character

Age	1 2 3 4 5 6	7 8 9 10 11 12	13 14 15 16 17 18	19 20 21 22 23 24	
	Infancy	Childhood	Adolescence	Post-Adolescence	Result in Adult
Favorable Factors	Regular sleep habits				Good habits—reliability
	Good eating habits				Normal appetites
	Adjustment to playmates				Social cooperation
	Good language—adequate vocabulary				Power of understanding
	Interest in play, sports and games				Healthy minded control
	Good pictures, books and art				Wholesome recreation
	Team work in good organization				Tolerance—teamwork—respect
	Interest in higher education				Intelligence—perseverance
	Civic education				Patriotism—good citizenship
	Work, industry, study				Thrift—respect for property
	Proper vocational and professional choices				Social satisfaction—real service
	Positive encouraging education support				Optimism
	Health plus Knowledge plus Religion equals Morality				
Unfavorable Factors	Irregular personal habits				Vagrancy
	Poor eating habits				Abnormal appetites—drugs
	Wilfullness—doing as one pleases				Selfishness
	Poor language and inadequate vocabulary				Profanity—misunderstanding
	Indifference to play and sports				Morbidity—social indifference
	Obscene pictures—pornographic literature—lewd art				Perversions—sex offenses
	Gang pranks—hoodlumism—lawlessnesss				Anti-social acts—vandalism—larceny
	Indifference—truancy				Ignorance—carelessness
	Radicalism—knocking				Anarchy—suspicion
	Indolence—sloth—ignorance				Poverty—vagabondage
	No vocational or professional training				Floating discontent
	Discouragements—condemnation				Pessimism
	Disease plus Ignorance plus Hatred plus Cynicism equals Crime				

Temple University News

The Board of Trustees of Temple University has adopted a novel scheme to increase the funds available for expansion of their plant, equipment and teaching staff. The tuition fees at Temple are said to be among the lowest in the United States but instead of increasing these tuition fees, they have decided to add to them, with the beginning of the new school year in September, a University fee of $25.00 per semester. The funds thus acquired are to be kept separate and are to be used in the expansion project of the University. In this manner, each student becomes a co-builder of the Temple University of the future. The fee is characterized as *an investment in prestige.*

Visual Instruction

LYMAN LEROY STANDLEY (Lambda)

The following study of visual instruction is an initiation thesis written for Lambda Chapter by Brother Standley at the time of his initiation. The study was presented for publication by the secretary of the chapter as a representative initiation thesis. We are pleased to publish the sketch as an illustration of what is being done in the chapters which require the initiation thesis.—Editor.

Visual instruction holds an unusual position in the field of education. Most departments of instruction are based upon subject-matter whereas visual instruction is based wholly upon method of presentation. Visual instruction is also peculiar in that it belongs to one of the senses. No other department of education holds this unusual position. We must inquire, then, what is the cause of an organized department of education based upon method of presentation in place of upon subject-matter.

Visual instruction is not new. Many of the best forms of visual instruction have been used for generations. Gradually these forms of visual instruction have developed and new ones have been brought into use. This necessarily has caused a demand for organization and centralization of these methods or aids of instructions. The addition of slides, stereoscopes, stereographs, opaque projectors, and especially the film to these aids caused a demand for centralization to grow rapidly. These new and rather complex aids in instruction brought about a need for a department where the materials could be centralized and thereby made available at a much smaller cost, and a departmental head who had made a special study of these aids.

Some one has said that there are four ways to learn about a given thing, as follows:

1. Studying the thing itself;
2. Studying a picture or representation of the thing;
3. Being told about it; and
4. Reading about it.

The last two are termed verbal instruction. In contrast with these visual instruction consists of the first two.

Relative Value of Visual and Verbal Instruction

By visual instruction we do not mean *visual* instruction as contrasted with other *sensory* instruction such as auditory, olfactory, gustatory, kinaesthetic, etc.; but rather all sensory instruction as contrasted with verbal instruction. Due to the difficulty of developing other than *visual* forms of *sensory* instruction practically all *sensory* instruction is *visual*, therefore, the term visual in place of sensory is used.

Much has been written about the relative value of these two forms of instruction.

Many enthusiastic supporters have been so radical as to claim that the efficiency of visual instruction is fifty per cent greater or even double verbal instruction. Edison is reported to have said the time would come when practically all instruction would be visual. Then on the other side we have had those who claimed that visual instruction is just another fad, and another way of wasting public money.

Visual instruction is not intended and never can replace verbal instruction but should merely supplement it. The relative effectiveness of visual instruction as contrasted with verbal instruction, depends on two major conditions.

1. The nature of the instruction to be given, and

2. The character of the pupil's previous acquaintance with the objects which are dealt with in the instruction.

Scientific experiments of Freeman and others have indicated this to be true. E. H. Reeder and Freeman found oral instruction superior to oral and visual in teaching Orange Culture, and in teaching Reclaiming Arid Lands by Irrigation the two methods were found practically equal. However, in teaching the Geography of Egypt, in a long experiment, they found visual and oral instruction superior to oral alone. H. W. James found the film decidedly superior to oral instruction in the study of the eye but he also found oral instruction slightly superior in a study of the mosquito. Nina L. Beglinger found that by the aid of stereographs and slides in teaching oral English to adult foreigners the gains were nearly twice as great as with the ordinary oral method.

Types of Visual Instruction

There are many types of visual aids available at present. Among these are:

Demonstrations, dramatizations, maps and globes, diagrams, graphs and charts, bulletin and exhibition boards, sand tables, museum and relics, specimens and collections, field trips, pictures, stereograph views (three dimensional views), slides, film-slides, opaque projection, and motion films.

Much has been said as to which type or types of these aids are best. To listen to these many statements one is almost compelled to think that many people are seeking some visual aid which is a panacea for all ills. Each of these types listed above has its supporters who claim that it is the best. This seems to be the result of a misunderstanding of visual aids. Each of the types has its own function to perform. We cannot say that any one type is best for all purposes. However, we can have some idea as to which type is best for certain purposes. Even in this point we are decidedly at a loss sometimes. Future experimentation will no doubt give us much more reliable information on this matter.

In deciding what type of visual aid to use one should keep in mind several criteria some of which are as follows:

1. Degree to which the type of aid is adapted to the subject-matter being taught.
2. The experiences of the persons being taught.
3. The availability of the material.
4. The amount of time involved in the presentation of the material.
5. The importance and need for visual presentation of the material being presented.
6. The relative effectiveness of the material.

At least in our decisions let us not be like a writer in a recent issue of the *Educational Screen* who says, "We are sometimes inclined to wonder if the same common sense is applied to a consideration of visual instruction methods as to other types of instruction. . . . . It seems to us that most of the testing and tabulating of figures to prove this or that visual aid is a better device than some other, is merely dust to the eyes of the unwary, stirred up, too often, with a view to continuing for a couple of years more some fast waning, though once lucrative proposition.

"The general public is usually several jumps ahead of the teaching profession. One by one it has sent to the attic one type of visual aid after another. The public knows what gives it the greatest return in information for its money and it does not ask for diagnostic tests to prove it. . . . .

"One State at least has done with temporizing over the situation and by September 1, 1927, everyone of the 1200 first grade high schools in Ohio will be required to have motion picture equipment to hold their charters. . . . . The standard sized film is to be used by Ohio schools—there have been too many lamentable failures in the past with any other kind."*

This quotation is somewhat characteristic of what we find today in the literature on visual instruction. One is tempted to refer the author of this statement to Pope's often quoted:

"Be not the first by whom the new is tried,
Nor yet the last to lay the old aside."

Or perhaps the author might profit by reading Sinclair Lewis' "Arrowsmith."

Because the stereograph occupied an enviable position along with the family album on the "parlor" table of thirty years ago are we to conclude that it is passe today as a visual aid? Or because the public today is paying out vast sums of money to see fascinating motion pictures are we to conclude that motion pictures are the one and only visual aid.? We feel justified in stating here that merely for a high school to own the best type of motion-picture machine does not mean good visual instruction will follow in that school. We have seen dozens of motion-picture machines, of a good type, and other types of visual aids as well, stored away under a thick coating of dust in the closets of some of the best California schools. Even if these aids are used it may result in visual *entertainment* in place of visual *instruction*.

Many rather careful and scientific studies have been made to determine the relative value of visual aids. It is true that the results are not very conclusive. However, some do throw light upon the subject.

The studies† of Frank N. Freeman and his colleagues at the University of Chicago, by aid of a grant from the Commonwealth Fund, are perhaps the best. In these studies McCluskey found the film inferior to the oral and map method of teaching French

*Aughinbaugh, B. A., "Which Visual Aid is Best"—*Education Screen*, June, 1927.
†Freeman, F. N., *Visual Education*, The University of Chicago Press, 1924.

explorations in United States history; the film inferior to the chalk talk in teaching about mountain glaciers; and the film inferior to the oral-chart method of teaching material concerning waste disposal in cities. He found the film and stereopticon-lecture method more effective than the film alone in a study of the Panama Canal. He found oral instruction illustrated by stereopticon slides, and oral instruction illustrated by pictures and sketches, approximately equal to film instruction in dealing with the life-history of the monarch butterfly. He found stereographs slightly superior, and films much superior to slides in teaching matters concerning steamboats in United States history. James found the film superior to still pictures in teaching matter concerning Yellowstone Park, and lumbering in the north woods. The two McCluskeys found demonstration superior to the slides, the film, and the stereograph in teaching how to make a reed mat, the slide being the least effective in most instances.

They also found demonstration and the stereograph superior to the slide and film in teaching how to make a pasteboard box, the demonstration being superior to the stereograph. However, the stereograph was found to possess distinct advantages in the box experiment which it did not possess in the mat experiment. Rolfe found the demonstration clearly superior in teaching lessons on static electricity. Freeman, Shaw and Walker found the film superior to the ordinary oral and demonstration methods of teaching handwriting. Freeman summarizes the studies as follows:

"The comparison of the motion-picture film with other visual aids—slides, stereographs, still pictures—as means of informational instruction, indicates that the motion picture is superior within a restricted range of subjects, and that outside this range of subjects the older devices are as effective or more effective than motion pictures."

Equipment Needed

There is much disagreement as to the equipment needed for visual instruction. We must keep in mind that much of the special equipment is in a stage of rapid development and what was best a few years ago is becoming obsolete today. Schools should have available as large a collection of charts, maps, display racks, flat pictures, specimens, relics, globes, graphs, sand tables and bulletin boards as the size of the schools and money will permit. These, of course, should be chosen wisely.

It is well in large high schools to have stationary motion-picture machines installed in fire-proof booths. These should be supplemented with one or more small portable machines for classroom use. The small schools can probably best have the small projector. The real educational value will most likely be had from the small projector in the classroom. Many of these are now on the market, ranging in price from $200 to $400 or even lower. In the selection of motion-picture projectors one has now to decide whether to equip with the standard or 16 mm. width. At the present, the larger library of films is in the standard width. However, the Eastman Kodak Company is carrying on a very extensive experiment with the narrow width film. The results will not be available for some time. The difficulty of projecting a small picture with the efficiency of the large has to be overcome in the narrow width film. The narrow type has the advantage of less expense. By use of a translucent screen these small machines will project the narrow film in a daylight room.

Where finances will permit, schools should be equipped with one or more small classroom stereopticon-slide projectors suitable for daylight projection. With these the slide may be projected on wall or blackboard without the aid of other screens. The blackboard has the advantage of permitting writing upon the picture. This is of great value in primary grades and with the projection of map slides in upper grades. These projectors may be purchased for $60-$70. They may be connected to any lamp socket but a special wall plug should be installed in every room for convenience. The ordinary translucent shades are sufficient for this type of projection. This permits the visual instruction to be easily and quickly available under ordinary classroom conditions with light and ventilation. In the selection of any of the types of equipment it is important to keep in mind the making of the material easily usable. The more complicated the equipment the less it will be used and the less likely to be used at the proper time and in the proper way when used.

The opaque projector for the projection of flat pictures, diagrams, charts, blueprints,

(*Continued on page 19*)

The Executive Committee of Phi Delta Kappa

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By joint action of the retiring executive committee and the incoming executive committee, Paul M. Cook was, on April 7, 1928, elected to be the *Executive Secretary* of Phi Delta Kappa. He will begin his new duties on October 1, 1928.

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Send copy for publication direct to the editor. Chapters should carefully edit all copy before sending it in. Members in the field are invited to send communications and contributions to the editor.

What Is An Education?

We are prompted to ask this question by the article appearing in this issue which is written by Dr. Thomas M. Carter. The type of responses given by students to the questions asked by Carter in his study cause us to wonder about the meaning of *Education* to the average college student. Is a college education defineable as 120 semester hours, or 36 majors, of credit? Or, perchance, is a college education to be defined as a certain process of change and development of the individual, such change and development resulting in a refined intellectual equipment for solving the problems of life in one sphere or another?

Imagine an intelligent man or woman deliberately attempting to buy a new suit, a new automobile, or a banquet dinner of inferior quality. And yet that is just what young men and woman are doing when they give of their time and means for four years in an attempt to acquire an education defined as so many majors or semester hours. They are securing a paper product only, a very inferior imitation of the real thing. Such an objective in a college career is quite naturally conducive to cheating and other subterfuges, since a major's credit secured in such a way is the full equivalent, on paper, of a major secured by honest effort. Such an attitude toward education is the inevitable product of our elementary and secondary systems of grades, marks and diplomas and until we begin to "sell" the idea of fundamental educational values from the kindergarten to the college, we shall have students in college who deliberately cheat themselves by demanding a paper product.

Mastery at every level, expressed as adaptations, understandings, skills and appreciations, is the only safe educational objective. Such an education will have real value to the individual and to society regardless of the paper record which may accompany it. The student who acquires an education of this type may be sure that he has purchased a product of genuine merit, of superior quality, and one which can be actually put to use in solving the problems of life. Cheating in all of its forms will have lost its charm since the student will realize that in cheating or "getting by" he is both culprit and victim.

The emphasis placed upon real learning products, as contrasted with half learning and lesson learning, by Professor Henry C. Morrison in his recent book entitled *The Practice of Teaching in the Secondary Schools*, is fully justified. His contribution to the educational thought of this day is beyond measure. Phi Delta Kappans and others who are interested in real, not artificial, learning products will do well to *master* the philosophy of education which has been so well presented in this book.

What is an education?

Initiation Thesis

Several articles in this and the last issue of the magazine have consisted of Initiation Theses. They have been published with a full recognition of the fact that they do not represent finished pieces of research such as are worthy of the dignified name of *thesis*. They are published as illustrations of the theses which are presented by the initiates in the various chapters. We hope that the readers will read these articles with a full recognition of their nature. A recent article of this type brought forth a very direct criticism by one of our most esteemed readers. We are thankful for such criticism as it puts us on our mettle. Let us have more of it when, in your judgment, it seems warranted.

Special Notice

The June number of the *Phi Delta Kappan* is mailed to all members of the fraternity who were on the mailing list for the April number and in addition to all who have since paid in advance for the new fiscal year which began on June 1. Please note that the next number and succeeding numbers for the year will be mailed only to those whose dues are paid for the year.

If you have neglected to pay in advance for this year, please send your check to your chapter secretary at once.

The National Secretary's Page

Clayton R. Wise

In December a questionnaire was sent to Chapter Secretaries asking them to furnish certain information regarding their methods of handling the chapter business. The results of this questionnaire are being published here in order that officers may compare their own procedure with those of other chapters and note what seems to be common practice.

Seven chapters failed to respond to the request for information, and as a consequence the figures cover only twenty-nine of the thirty-six chapters existing at the date of the inquiry. The questions and answers appear in the following table.

CHAPTER PRACTICE REVEALED BY RESPONSE TO QUESTIONNAIRE

Question	*Yes*	*No*	*Both*
Do you have an office on the campus?	23	5	--
Do you have your office at home?	5	23	1
Do you have a desk exclusively for fraternity work?	12	17	
Do you have paid clerical help?	8	21	
Do you have a permanent post office box or other permanent address?	22	7	
Does your chapter publish a News Letter?	22	7	
Do you have fixed hours for attending to fraternity work?	10	19	

The National Secretary suggests a careful study of these data as a means of throwing light on the subject of ease and efficiency in caring for the work of the chapter. For some time this office has been urging a systematized practice in chapter offices with a view to saving the time and labor which the secretary and treasurer give to the work.

An office on the campus which may be visited at a fixed time each day or on certain days each week should in most cases be a great aid in getting the work done without delay or procrastination. It is interesting to note that a large number of chapters have adopted this practice.

It will no doubt be surprising to note how few chapters have a desk which is used exclusively for fraternity records and work. It would seem to be almost a necessity for all chapter records and forms to be assembled in one desk so that they might always be found when wanted and would always be at hand for use. It would seem a very desirable thing for each chapter to provide such a desk for the use of the secretary and treasurer. The records of each would then be available for the information of the other and the work would surely be facilitated by such an arrangement.

The question of paid clerical help has been considered and favorably recommended by two or three National Councils. However, the adoption of the practice does not seem to progress very rapidly.

The permanent address has been adopted by a large majority of chapters. The use of an individual's personal address for fraternity mail has been productive of much loss and delay of mail. It is to be hoped that all chapters will adopt the post-office-box system within a very short time.

It is usually taken as a matter of course that all chapters publish a News Letter for their members in the field. It is therefore surprising to note that seven chapters do not publish such a periodical.

The secretary hopes that this list of questions may contain helpful suggestions for chapters. It may be, perhaps, that some chapters have not considered the value of a chapter desk, campus office, permanent mail box, clerical help for routine work and fixed hours for the officers. It would appear probable that a chapter which adopted all of these suggestions would find that its affairs would be conducted with much more ease and accuracy.

* * *

It is the contention of many of us that the chapter owes every possible convenience to its officers since they, in the very nature of the case must give so much of their time and energy to the conducting of chapter business. It is encouraging to see that so much has already been accomplished in that direction. A business-like administration of chapter affairs will, without a doubt, return large dividends for any reasonable financial outlay that may be involved.—*Editor.*

As the Author Sees It

(Please send contributions to the Editor)

Standardizing Teachers' Examinations and the Distribution of Class Marks. Robert S. Ellis, Colorado College, Edited by Guy M. Whipple. Published by the Public School Publishing Company.

The purpose of this book is to assist the average teacher of all grades from the elementary school to the university to secure a better understanding (1) of the purposes of examinations, (2) of methods of constructing, giving and scoring them, and (3) of methods of converting scores into marks which will be equitable and meaningful. Both old type and new type examinations are considered. Quotation tests, definition tests and free recall tests are added to those usually given. Emphasis is placed on the value of tests in connection with the teaching process as well as on their value as a basis of marks.

The normal curve of distribution is assumed as a general basis for the distribution of marks but an attempt is made to show how this can be applied to different classes, small as well as large, so as to give due weight to selective factors which cause differences in the average levels of performance for different classes. The mechanical application of the normal curve to all kinds of classes is not advised.

ROBERT S. ELLIS.

* * *

How to Do Research in Education. Carter V. Good. Published by Warwick and York.

Too frequently the student must discover information concerning research procedures by the wasteful trial and error method. It should be necessary neither for the student to waste time in discovering by chance basic information concerning research principles nor for the professor to consume his time in repeating to different students information which could be presented systematically in an organized class group. Until quite recently one of the difficulties involved in giving systematic instruction in the technique of research has been the lack of concrete organized materials which could be placed in the hands of the student. This shortage of working materials has been partly eliminated within the past three or four years by the publication of scattered contributions in widely separated monographs, bulletins, articles, and editorials. One of the aims of this book is to organize, summarize, and interpret these contributions to the literature of educational research.

The content of the book was determined in part by a canvass of the practice in twenty large graduate schools with regard to guidance of students in education. The replies expressed considerable interest in the guidance problem at the graduate level, but a frequently recurring comment was concerned with the relatively small amount of comprehensive and organized material available for placing in the hands of the student. The twelve chapters discuss the following problems: value of educational research, sources of information in education, technical vocabulary and terminology in education, characteristics of scientific investigations, selecting and defining a problem for investigation, techniques of educational research available for the collection of data, analysis and organization of data, interpretation of data and formulation of conclusions, reporting educational research and the preparation of a manuscript for publication, evaluating educational writings and professional books, training research workers and guidance of graduate students, and progess in educational research. A selected bibliography of books, monographs and bulletins is included.

The aim of this handbook or summary of the literature of educational research is to prove of service to the individual graduate or senior-college student who prepares a thesis or term paper, the research worker and investigator, the seminar group in education or cognate subjects, the public school worker interested in experimentation or investigation, and others who are concerned with the conducting and reporting of research or the publication of educational writings.

CARTER V. GOOD.

* * *

A Manual for Student Teachers. H. C. Pryor. Published by The Macmillan Company. This manual contains one hundred and seventy-three pages, including blank

pages for students' notes. The first chapter is historical. The second tells how the manual should be used to get the best results.

Outlines are provided to be used in connection with the following twenty-one units:

I. Cleanliness and Neatness of the Room.
II. Lighting, Heating and Ventilation.
III. The Class Room, Building and Grounds.
IV. Seating and the Needs of the Individual Child.
V. Attendance.
VI. The Daily Program of Work, Study, Recitation and Play.
VII. Supplying the Class with Equipment and Materials for Work.
VIII. Supervision of Passing of the Children.
IX. Visual Instruction.
X. An Outline for Studying the Child.
XI. School Health.
XII. Supervision of Play.
XIII. Records and Reports.
XIV. Planning for the Lesson, Day, or Longer Period.
XV. Testing the Childrens' Progress.
XVI. The Student Teacher's Rating Scale.
XVII. Individual Instruction.
XVIII. Working with the Group or Class.
XIX. Parent-Teacher Relationships.
XX. School Discipline.
XXI. Ethics of the Teaching Profession.

The outlines are based on a careful study of what the student-teacher needs to prepare him for his future work. They have been developed with the co-operation of student-teachers, supervisors, and directors of training under actual school conditions.

While the units have been developed chiefly in the elementary grades they may be adapted, readily to the needs of prospective high school teachers.

Careful use of the outlines insures consideration by the student-teacher of the most important problems which he will meet later in the school room.

H. C. PRYOR.

* * *

How to Measure. Revised Edition. Guy M. Wilson and Kramer J. Hoke. Published by the MacMillan Company.

The first edition of *How to Measure*, published in 1920, was a departure from the usual work on measurement in that it was addressed primarily to the classroom teacher. The second aim, more or less in common with other writers, was a special emphasis upon diagnosis of pupil ability and pupil difficulties. That was only eight years ago. Some reviewers laughed at the idea that the teacher could be expected to use standardized tests. If there is any laughing today it is all on the other side of the question. One after another writers on measurement have accepted the idea and Buckingham in his recent volume *Research for Teachers* has put the problem in such a way that all must accept that viewpoint. This means that every teacher must be trained to the extent of having a practitioner's knowledge of standardized tests and their use. With this idea in mind we have attempted to write *How to Measure* in simple, direct style, keeping the individual schoolroom strongly in mind at every step.

The revised edition adds several new chapters, one on the criteria of a standard test calls for a much broader view of testing than has frequently been held by men in the field of measurement. It asks that standardized tests square themselves with curricular standards and right methods of teaching. Readers will be interested also in chapters on content subjects, achievement tests, measurement of intelligence, and a considerable expansion of the work in the measurement of secondary school subjects.

The critical viewpoint on content subjects appearing in the first edition is extended and emphasized in this edition. In the tool subjects standardized tests have been very successful. In the content subjects, both problem and appreciation, the value of such tests has not yet been thoroughly proven. Instead the informal test has more or less replaced the standarized test in the problem and appreciation subjects. Needless to say, the authors will appreciate the reaction of research men on these views.

GUY M. WILSON.

Visual Instruction

(*Continued from page 14*)

etc., from books and other sources is valuable equipment for any school. This projector should be portable and as small as possible and should be capable of projection in as light a room as possible. These machines may be purchased for from $50-$110. By the use of a special translucent screen of ordinary dental rubber (at a cost of about $5) these machines will project well in a

room with ordinary translucent shades. The idea of taking the class into a special room with opaque shades without ventilation seems to be disappearing rapidly. In the past, the slide and opaque projectors have been combined into one machine. The best practice now seems to be to have these separate. This makes it possible for the projectors to be smaller and therefore more portable and permits two teachers to use the machines simultaneously. These machines may be had separately at very little more cost than together and the slide projector is much more efficient when separate.

Large city school systems should purchase their own library of films and maintain a repair service. The smaller school systems can best rent films since each film will be used only a few times each year. Large libraries of films are now available at a small rental.

Schools should, if possible, build up their own libraries of slides and stereographs. These will be used only a few at a time and almost daily. No proper, comprehensive educational program can be carried on by renting the slides entirely. Occasionally, valuable special sets of slides may be rented. Much emphasis has been placed lately upon the value of the colored slide and stereograph over the plain. No studies have been made in regard to this but it is the belief of the writer that the advantage of the colored slide has been exaggerated. However, the relative value of these depends upon the type of picture. It is surely true that the colored slide is superior to the plain in such matters as teaching birds, flowers, and national costumes. In much of the work in social science the plain slide seems to be about as good as the colored. The colored slide costs more than double the plain. There is danger also of poor coloring.

The stereoscope is a small instrument for use with the stereographs. It gives the third dimensional appearance which is a great advantage over the slide and film in many matters. Stereoscopes cost $1.75. Each elementary school room should be equipped with one. It is not necessary to have one in the hands of each pupil as only a few pictures will be shown at one time. The one stereoscope may be passed from one pupil to another or preferably placed on a reading table as are reference books.

In the last few years film-slides have made their appearance on the market. In some matters these are very good. They are not as convenient to use as the glass slide and they do not permit the teacher to make her own selection and adaptation of the material to the subject being taught as much as do the glass slides. There is more danger of the visual work becoming entertainment. They are less expensive than the glass slide in initial cost but will not last as long. Small attachments for projecton of these film-slides may be placed on the slide projectors. These attachments range in price from $7.50 to $35.00, depending upon the type of film-slide. One type of these film-slides are of the size of motion films. Since these pictures are so small it is difficult to get as clear a picture as with glass slides.

Use of Visual Aids

In the use of visual aids the teacher should always keep in mind that the material used should be for some definite teaching purpose. Perhaps the greatest need for concrete materials comes from the lack of adequate imagery on the particular subject on the part of the pupil. Visual material should be used only when the subject presented is such that the pupil does not have an adequate imagery on the subject. Sometimes the pupil may have had the experiences but there is need for more vividness. This vividness may be brought about by fresh experiences. This makes it advantageous sometimes to introduce a new subject by visual aids. Also, the visual aids are splendid in summarizing a topic. Again, many times during the study of a topic certain matters may be presented much more quickly by visual than by verbal instruction.

In the use of all types of visual aids the pupils must be prepared for the work. The proper setting must be provided and the material not merely *thrown into* the study. Then too, the material must be carefully prepared. The teacher must be thoroughly familiar with the material and the material properly arranged. Many gross mistakes are made in this regard.

Another important matter to consider is the follow-up work after the use of visual aids. Especially is this important in the use of films due to their complex nature and the amount of material shown in a short time. In this follow-up work misconceptions may be cleared away, emphasis placed upon appropriate points, and the

(*Concluded at bottom of next column*)

A Phylogenetic Study of the Evidence of Learning in Lower Organisms

G. Herbert Smith (Pi)

This study was given as an initiation thesis at a joint meeting of Zeta and Pi chapters this year. The subject matter of the study varies widely from that which we usually print but the study is given chiefly as an illustration of an intiation thesis. It was thought by Pi Chapter to be one of their best.—Editor.

Introduction

Man is an animal. In times not so distantly past, to have made such a statement would have branded one as a heretic. Even in this Twentieth Century there are those who would regard this claim as blasphemous, and lowering the dignity of Diety. Nevertheless, a student of biology cannot get away from the fact that the individuals composing the entire animal kingdom, from the lowest protozoa through the primates, show many common features. One very significant likeness is the common possession of the characteristic of life. Man is no more an animate creature than is the amoeba or any of the protozoa; and in possessing life, they also have peculiar to life, those common processes of anabolism and catabolism.

This likeness between man and the lower animals if of importance to the psychologist as well as the biologist. In a study of the psychic life of man, the facts of comparative and animal psychology must not be ignored.

One of the most outstanding characteristics of man is his ability to modify his activity in light of the demands of a changing environment. The question arises, is the human peculiar in that he alone, of all the animal kingdom, has the power to make these adjustments? It is the answer to this problem which will be attempted. *What are the experimental evidences of learning in lower organisms?*

Perhaps, in order to be sure that this problem is clear, some definitions should be given. The term "experimental evidences" denotes that the facts must confine themselves to those which have been secured by competent persons controlling the situation, developing and manipulating the required apparatus, and recording and interpreting the results.

Studies of animals which have led to conclusions on ability to learn have not always been so carefully controlled. The truth is that many reports have been mere passive observations or, more often, second-hand observations. There was a tendency for early investigators to sit in their studies and base their writings upon letters received from friends concerning some "brilliant trick of a pet that could be explained upon no other grounds than that of "reason."[1] Such writings would usually end with a generalization on animal intelligence.

As a result of the writings of these men, a fanciful conception of the ability of animals to learn has been built up. It is the purpose of this paper, in using data secured from definite experiment only, to build up an idea of animal learning which will be as accurate and well founded as possible.

There are no doubt that if facts are to be found which may be used in this connection, the definition of learning must be precise. For this purpose, throughout the discussion, the definition used by Bentley and Day in setting up criteria for learning in Paramecium, will suffice. "By learning we mean some slight modification of that action system which is brought into function by the common activities of the organism provided that modification is preserved by the animal and used as an acquirement upon a later occasion."[2] In other words, this idea of learning is based upon the evidence which the animals show of being able to profit by their past experiences.

Those members of the animal kingdom lower in the phylogenetic scale than man are included in the term "lower organisms."

(*Concluded from page 20*)

proper relations between the many points brought out.

The use of visual material should not be limited to that made of it by the teacher only in the formal class work. Many of these materials can and should be placed available for pupil use as reference material in project study. This phase of the use of visual material needs to receive more emphasis.

Of course, such a study as this will have many limitations. It would be impossible to include a discussion of some experiment from every order of animals. Even if time and space permitted, the experiments would not be available. In collecting and reporting the data, then, it is necessary to sample from the entire animal kingdom according to the availability of the material, and further, to sample the experimental evidence in the field. The criteria for the selection of materials was the reliability of the one making the experiment, and the appropriateness of the experiment to the subject.

In reading over the wealth of material pertinent to the subject, another problem presented itself; that of securing experiments which were enough on the animal's level even to approach a proof of that which was sought. In fact, it seems to have been impossible to do this in most cases. Thorndike has been criticized in that his puzzle box was too far above the cats to be suitable for the experiment. If this statement is just, as it seems to be, then there are many more experiments which should receive the same rebuke. Nevertheless, this problem is stated so simply that if the facts show that the animals definitely profit by past experience, their use will be justified.

The Experimental Evidence

In the arrangement and presentation of the data, a careful attempt was made to start with the lower forms of life and come up the animal scale; however, not every phylum is represented. The usual reader will doubtless find the experiments with the protozoa and the lower metazoa the most interesting since they are so unique. Evidences of learning in many of the chordata are so common that their ability to modify their behavior is taken for granted. Nevertheless, in order to have a complete report of the problem, experimental evidence must be presented up to and including the higher apes.

Care should be taken in studying the reactions in the lower organisms, to refrain from comparisons with humans. It is Thorndike's idea that very few associations in man are at all comparable with those of lower animals. He includes such associations as are formed in learning to swim, juggle, play tennis, and so forth, provided we remove in man all the mentality not directly concerned in learning the facts.[3] Such isolation would be practically impossible.

The data upon which the conclusions must be based, are the external facts in the animal's behavior plus the internal states which we are forced to assume.

In the lower protozoa and metazoa one must not expect the organism to retain the changed behavior too long, for it is known to be in evidence only a short time. Statements have been made that the modified behavior endured for five hours in Vorticella. The lowest animal in which enduring modification has been demonstrated in the flat worm, Convoluta roscoffensis. This animal, which lives on the seashore, burrows at high tide and comes up on low tide. If taken inland it will periodically continue to do this for a couple of weeks, then the behavior ceases, not to return as long as the animal remains inland.[4] Would you not say that the flat worm had learned?

Before taking up the experimental evidence, it might be well to make some statement concerning the types of unsuccessful acts which will be found as the animal "learns" by the trial and error method. The unsuccessful movements which the animal makes in learning may be classed under two groups, the ill-adaptive acts and the excessive acts. Ill-adaptive acts refer to those which result in physical punishment or tend to check the activity or the progress of the animal toward a consummatory reaction, such as food, or a relief from confinement. The excessive acts are those which neither do injury nor prevent the organism reaching its goal, but nevertheless delay or prolong the process of consummatory reaction. In its behavior, the animal will eliminate the ill-adaptive movements before the excessive, and the order of the elimination of the former will depend upon the degree of ill-adaptiveness. The excessive movements may not be eliminated at all.[5]

Attention may now be turned to some of the experiments. The Paramecium is a one-celled organism in the class Ciliata. As the class name would suggest, this is a genus of ciliated Protozoa, the individuals of which are quite active in determing what portions of the environment shall act upon them; rejecting such things as are injurious to it, and accepting those that are beneficial. This keeps the animals from entering temperatures that are above or below those favorable for the life processes, and causes

them to avoid injurious chemicals of all sorts.[6]

Jennings gives us a discussion which would lead us to read learning into the behavior of the Paramecium, but he gives no exact evidence. However, we do have an experiment which would seem to show ability to learn. The experiment is one conducted by Day and Bentley. A Paramecium was isolated and drawn into a glass tube, the diameter of which was a little less than the length of the animal. The drop of culture water containing the individual was drawn up near the middle of the tube and then the ends were sealed. When the animal was observed under the microscope, it was seen to swim back and forth as far as the water permitted. On reaching the meniscus, the animal would change its directions by bending the anterior end at the oral groove until the backward beat of the cilla carried it along the wall of the tube and to the rear. However, before a complete reversal was made, several partial turns across the tube were attempted, and these serve as the material for our observation. If the Paramecium could, after several trials, succeed in eliminating some of these ill-adapted movements, then it might be said to be modifying its behavior in light of past experience. A record was made with a key and kymograph of the backward and forward wheeling at the meniscus, and it was found that for fifteen reversals, the average number of trial turns before a complete one was made decreased from an average of 22.6 for eight individuals, to 2.9. The average time in seconds was also reduced from 88.6 to 26.5.

When a particular individual was traced through three processes, being allowed to rest thirty minutes between one group of trials and the next, it was found that while the number of attempted reversals was larger than the last trials of the preceding group, yet the numbers were not nearly so large as when the animal first started to learn the habit, and the ability previously exhibited quickly returned. This would seem to show that there was some power of retaining the habit after thirty minutes of rest.

On the basis of this experiment, Day and Bentley conclude that Paramecia are able to modify within a few minutes their usual avoiding reaction, and that the effects of this modification remain for some time, independent of external changes.[7]

It has been suggested that perhaps the striking of the individual against the side of the tube caused the flexible protoplasm composing the organism to change its shape to that the animal found the turn to be made with less difficulty. This would be altogether possible, and in such a case the experiment would not indicate ability to learn, since the increased ease with which the animal turned would be dependent upon a change in the physiological makeup and not past experience. However, there seems to be more evidence in favor of the former contention as expressed by Day and Bentley; so until disproved, we choose to accept it rather than the latter.

Before the account of an experiment with another of the Protozoa is given, it would perhaps be wise to describe the animal. Stentor roeselei is a colorless or whitish trumpet-shaped animal, consisting of a slender stalk-like body bearing at the end a broadly expanded disk—the peristome. The mouth lies near the edge of the disk and approximately in the middle of the oral or ventral surface of the body. The smaller end is known as the foot, by which the animal can attach itself by sending out fine pseudopodia.[8]

The experiment consisted of taking a long glass tube which had been drawn to a fine point. The tube was filled with water and the point brought near the Stentor. The pressure caused a jet of water from the tube to strike the disk of the animal, which, like a flash, contracted into its tube. A moment later it extended and resumed its normal activity, paying no more attention to the jet of water. This seems to be a "learned" reaction to a harmless stimulus. However, when a dense cloud of carmine is added to the water, quite a different set of reactions take place. At first there is no reaction, the animal continuing its normal activity for a short time. Then a slight reaction is evidenced by the animal turning into a new position, seemingly attempting to keep its normal activity and yet rid itself of the stimulation. When this proves unsuccessful, there is next an interruption of the normal activities, a momentary reversal of the ciliary current. Failure still crowning its efforts, the animal breaks off its normal activity completely by contracting. Finally, the animal not only gives up its normal activity but abandons its tube, swims away and establishes itself where the stimulus does not act upon it.[9]

In commenting upon this, Jennings claims that the changes in the behavior of the Stentor are regulatory—the animal becoming more fitted to the external conditions. Otherwise, a comparison with learning in higher animals would be out of place.[10]

This experiment would be better suited to the present work if it could be demonstrated that with a recurrence of the same situation, the Stentor showed evidence of previous experience by leaving out some of the reactions and moving away, relatively early, to a new location. Unfortunately, no such observations are reported.

In concluding his work on the Stentor, Jennings points out that in one important feature, the behavior of the Stentor falls far below the evidences of learning in higher animals, in that the modification induced by experience seems to last but a short time.[11]

Before taking up the Metazoa, it might be said that on the basis of the reported experiments, the reactions of Protozoa may change while the stimulus remains the same. Behavior is dependent upon the past history of the organism. An important observation at this point is the fact that for such modifications of behavior, a nervous system is unnecessary.[12]

Among the lowest of the Metazoa are the Sea Anemones, belonging to phylum Coelenterata and class Anthozoa. The behavior of this animal seems under like conditions to parallel that just reported of the Stentor. When stimulated by a glass rod on the disk, the stimulation being repeated many times, the anemone reacts first by contraction, then by turning repeatedly into new positions, and finally by moving away. Too, when the animal was extended, force was applied to bend it far over to the left. After this was continued for a while, the first fifteen extensions made by the animal, without hindrance, were made over to the left. Thus, the animal seems to have learned a new habit.[13]

A consideration of the Starfish introduces Phylum Echinodermata, class Asteroidae or Ophiuroidae (Brittle Stars). Although the Starfish has no central nervous system, there is a nerve cord which forms a ring about the mouth, and from the five angles of this ring, nerve cords run outward into each ray. In Preyer's time it may be noted that little was known about the ability of Infusoria to learn, for he makes the statement that it had never been shown that an animal with so simple a nervous system as the Starfish could form habits.[14]

Preyer's experiment of confining Starfish by means of large flat-headed pins placed in the angle between the rays, and driven into a board on which the Starfish lay, is very good if it can be accepted. His observations were, that the animal tried by various methods to escape, and where the experiment was repeated several times, the time required was much less and the useless motions had decreased. However, there is some shadow cast over this experiment since its results were not confirmed by like experiments of Jennings.

Jenning's work with Starfish was based on the tendency of the animal, when on its back, to right itself by the aid of its rays. The pair of rays selected were never used by the animal in its righting reaction. A period of training was started in which the animal was allowed to use only rays B and C in turning itself over. After eighteen lessons, the Starfish was allowed to right itself five times in succession without interference, and in every instance ray B was used. Thus, the method of turning had been completely changed in eighteen lessons. However, after two days of rest, ten trials were made in which ray B was used but once, showing that the training had not lasted. After more training, it was finally brought to use B and C, but only with difficulty, and after forty-eight hours rest, B and C were used four out of ten times. Training of other Starfish met with similar results. Thus, it would seem that Starfish have the ability to learn a habit which is extremely difficult for them, and also have some slight ability to retain it.

An experiment by Yerkes on the intelligence of Earthworms gives an example in Phylum Annelida, Class Chaetopoda. For this work, an apparatus was prepared consisting of a T-shaped labyrinth of plate glass, with runways two centimeters wide and glass walls two and one-half centimeters high. The distance from either entrance to the mid-point of the unbroken wall was twelve centimeters. The T rested upon a piece of plate glass and was insulated by rubber. A piece of No. ½ sandpaper one cm. wide was placed across one arm of the T, and the chemical or electrical stimulus was just beyond the paper. In the case of chemical, blotting paper soaked in strong salt solution was used.

This apparatus was designed to test the

ability of the worm to "learn" to follow a simple path and to avoid an injurious chemical or electrical stimulus by reacting negatively to a peculiar tactual stimulus preceding the chemical. A very vigorous worm was selected for the experiment. The entrance of the T was placed so the light from the only window in the room would fall on it and drive the negative phototoctic worm into the T. On reaching the end of the entrance stem of the T, if it turned left it would come in contact, first with the sandpaper, then if it proceeded, with the chemical or electrical shock. A record of the results for three days in which ten trials were given each day, seemed to indicate that the worm had learned its lesson very quickly.

Date	*Average No. Contacts*		*Average Time*
	Sandpaper	*Salt*	
October 12 ..	2.2	.6	163 sec.
October 16 ..	1.	.3	103.5 sec.
October 17 ..	.0	.0	68.5 sec.

A rest given the worm from December 19 to January 8, resulted in better performance on the latter date than on the former, so there was no indication of a loss of the habit.

When the first four segments were amputated, the worm wandered about more, but was still able to thread the maze, showing that a thoroughly ingrained habitual act is relatively independent of the "brain" as far as the worm is concerned. When the anterior segments were regenerated, the worm was forced to relearn the habit.

Some of the results of training other than those already mentioned were seen in the increased readiness of the worm to enter and leave the apparatus, evident "recognition" of the exit tube, gradual increase of avoidance of sandpaper, disappearance of tendency to retrace course in the stem of the T, and a disappearance of the tendency to turn back after progressing well toward the exit tube.[15]

This experiment on the earthworm, in the writer's estimation, is one of the best experimental bits of evidence that lower organisms are able to profit by experience.

To look at the slow moving figure of a land snail, one would not be overly impressed with its potential ability to learn. And indeed, some writers deny that the ability exists. However, one experiment is on record which would seem to say that learning is possible in Rumina decollata Linne (Phylum Mollusca, Class Gastropoda). The apparatus was the same as that used by Yerkes in the Earthworm experiment. In this case, an electric bulb was used to furnish the light, and the subject was allowed to remain in the dark damp box for a short time after being successful. The results show that during the first five trials there were four errors. By the time trials 71 to 75 were reached, the errors had entirely disappeared, and the same results held for the next six groups of five trials. At this point, the shell on the animal was cracked and he was allowed to rest for 30 days, and when given another trail there were no errors. This would seem to indicate that retention was quite strong in the snail. The single trial after rest should have been substantiated by further evidence, but this was impossible because of the death of the animal on the next day.[16]

Different Orders of Crustacea (Phylum Arthropoda) have proved quite popular for experimental use to show learning. One of the simplest procedures was to place a Crayfish at one end of an inclined plane which opened at the other end into the water. The apparatus was partly divided by partitions in such a way as to leave two passages A and B leading into the water. Either of these could be closed by placing a piece of plate glass across it. Thus, when the animals were placed at one end of the plane, they might move directly out into the water, or enter the blind pocket. At first, some preliminary observations were made which demonstrated that the animals had no right or left preference. The partition of glass was then placed in one of the passages, and trials were started. Three individuals were used and given sixty trials. During the first ten, they went as frequently into the blind passage as directly into the water. The second group of ten trials gave hope, as the percentage was about sixty-forty in favor of the open passage. By the third series of trials, the correct actions were 75.8 per cent, which raised in the next twenty trials to 83.3 per cent and 90 per cent. In another series of experiments after four hundred trials, an individual made only one mistake in fifty trials, which would seem to indicate that the animal had learned its lesson quite well.

In endeavoring to see how easily the acquired condition could be modified or

destroyed, after the Crayfish had learned to go through the opening so that he made only one mistake in ten cases, the experiment was discontinued for two weeks. Upon resuming the trials on the fourteenth day, the animal still showed an inclination to go directly to the open passage, but the habit had been a little dulled, showing three mistakes in ten trials. When the partition was reversed, the Crayfish tried for about fifteen minutes to get out the old passage, but finally finding its way into the water, it used the new passage almost as constantly as it had the other one.[17]

Another interesting experiment was made in this group on the Hermit Crab. These animals tend to react positively to light, as shown by the fact that they remain in the lighted parts of the aquarium. To start the experiment, the Crabs were fed by placing a small dark screen with a fish beneath it in a certain part of the aquarium. This soon caused active movement on the part of the Crabs, and after a time, some of them passed under the screen to find the food. During the first day, three individuals out of thirty succeeded in fifteen minutes. On the third day, in the same period of time, twenty out of the total group located the food and by the end of the eighth day, twenty-eight out of twenty-nine discovered the food in five minutes.

The experiment was then repeated as previously, only the screen was placed in the aquarium without the food. Most of the individuals passed beneath it as before, twenty-five out of twenty-seven going under on the thirteenth day in five minutes. After entering, they were fed so the screen-food association would not be lost. Thus, the animals were not only able to overcome avoidance of the dark in the presence of food, but also responded to the dark and the screen alone.[18]

One type of insect with which certain sections of our country are cursed is the Cockroach. Frequent observations of this animal have been made by all of us, making actual experiment still more interesting. As a basis for the work with this insect, the fact long since known, that Cockroaches avoid light and seek dark, was verified. Then a bottomless glass box was placed upon a base constructed to conduct an electric current. A part of the box was shaded, the rest being in the light. When a Cockroach was placed in the light part of the box, it immediately turned toward the dark part, whereupon it received a shock, which continued until the individual returned to the light portion again. After this had been repeated many times, the animal, running in the direction from light to dark, on reaching the boundary line would stop suddenly, move its head in all directions and usually turn back toward the light. The number of times the animal turned back from the boundary line between the darkness and light to the latter without receiving a shock increased with training. The training was considered complete when the animal being in the light, upon approaching the boundary, turned back ten times without receiving a shock. All the ten animals used in the experiment did this, although individual differences are shown by the fact that the number of shocks necessary for learning ranged from sixteen in one individual to one hundred eighteen in another. Another evidence of difference could be seen in the length of the period which the Cockroaches retained their newly acquired habit. The time from the last effective shock to the first succeeding retreat into darkness varied in individuals from three minutes fifty-three seconds to fifty-five minutes. It was further observed that no relation was in evidence between the degree of permanency of the newly acquired habit, and the number of shocks necessary to establish it. (Phylum Arthropoda, Class Insecta).[19]

The last of the great divisions of the animal kingdom is the Phylum Chordata, which includes all of the vertebrates. Most of the experiments in this section are either of the maze or the puzzle box type. There have been among animal workers, many who criticize the maze experiments, saying that they are not reliable.[20] However, it seems a matter of opinion. Both sides have good and poor arguments, and while it is doubtful if the maze would be suitable to test many types of mental processes, the simplicity of the problem permits its use.

The Hampton court maze with seven blind alleys has been one of the most popular and has been used to test many different animals. Among these experiments was one made on birds. The subjects were little songbirds including four Canaries, two Bullfinches, one Siskin, two Choffinches, one Pine-grosbeak, two Crossbills, one Tomtit, one Finch—a total of fourteen birds. It is well to remember in this case that the birds were at a disadvantage, being unused to

walking. The birds were hungry, and the food was placed in the center of the maze. All the birds were able to learn the maze, requiring from twenty to fifty trials. The chief factor in learning was sight, depending especially upon the distribution of the light and shadows in the alleyways.[21]

Of all the animals upon which experiments have been performed, the Albino rats have been among the most popular. To repeat all the experiments attempted in order to show learning in the rat would fill a large volume. These rats have evidenced time and again that they could profit by experience. Only one report of the many works available is here presented. A simple labyrinth was prepared in the form of a cage made of mesh wire, the only entrance being through a piece of cotton fire hose two inches in diameter. One tube was a blind, having three entrances, while the true path to the food had but one entrance, which paralleled one arm of the blind. The rat, when placed in the cage where the problem was, could smell and see the food. At first, of course, he performed many useless movements, such as running all around and all over the cage, scratching and biting the cage, before finding the entrance. The average time for one group of rats to make their first entrance was twenty-three minutes. The second entrance that same day was made in an average time of one and one-half minutes. The habit was clearly retained for the period of one day, as can be seen by the fact that the first entrance on the next day was made in 2.65 minutes, and the second entrance in .73 minutes. Similar results were secured for two other groups of rats.[22]

Anyone who has read the little volume entitled "Pigs is Pigs" will not fail to recognize the scientific value of the Guinea Pig. The abundance of these animals, and their convenient size have made them rank with the white rat in popularity for experimental use. In one case, a very difficult labyrinth experiment was presented to the three-day old Pig, using the mother as a stiumulus. Care was taken to have the whole cage free from odor. The mother was placed in the center of the labyrinth, and the little one at a point outside. The time required to reach the mother the first time was a little over five minutes. On the second trial this was reduced to two minutes. There were few random movements and no blind alleys entered this time. The pig used, was one that had been used in simple experiments before. When another young one of the same age was selected, it wandered about for forty-five minutes without finding its way in. After once discovering the path, it did so the second time in 3.166 minutes. It was also observed that in both cases, the pathway persisted, since the experiments on the following day showed few random movements and short time reactions.[23]

Another experiment making use of the Hampton court maze was one in which a Canadian Porcupine was studied. The maze in this instance was seventeen feet long, thirteen feet wide, and fourteen inches high, with alleys one foot wide, built of chicken wire fastened on frames. By the most direct route, it was one hundred and five feet from the entrance to the food. If the animal entered any one of the seven blind alleys he was charged with an error. If he ran back and forth while inside, each false turn was counted an error. Trials were made daily for one week, increasing the number of trials each day. For the first three trials the animal seemed to make no progress, requiring from one hour and nine minutes to an hour and twenty-five minutes to solve the maze. The errors numbered from sixty-three to ninety-three. However, starting with trial number four, there was a rapid decrease both in the time required and the number of errors made. (It is natural that a positive correlation should exist between these.) Starting with the 39th trial, which was made in one minute twenty-eight seconds, the animal made the ten errorless trials, which would indicate that a new habit had been formed.[24]

Among the best known experiments on animal learning are those of Thorndike with cats. These studies, as we mentioned earlier, have been subject to severe criticism, especially by some of the German scientists, such as Köhler. The main fault which is found is that the problems for the cats were not "good cat problems." However, they will serve our purpose quite well. Thorndike's experiments were merely to put the animals, when they were hungry, in an enclosure from which they could escape by some such simple act as pulling a loop of cord, pressing a lever, or stepping on a platform. Food was placed outside where the animal could see and smell it. When a cat was placed in the box under these conditions, it showed definite signs of

discomfort and an impulse to escape from confinement. Much energy was expended in alternately trying to squeeze through openings, clawing and biting the box, and thrusting its paws out through the openings and clawing at anything within reach. The cat seemed intent on escape, paying little attention to the food outside the box. In its random movements, the cat usually accidently struck upon the solution to the problem so as to open the door. Gradually, all the other nonsuccessful impulses were stamped out and the particular action leading to the successful result stamped in, until, after many trials, the cat, when put in the box, would immeditely perform the act which liberated it. Of twenty-four trials in the box, the time ranged from about three minutes at first, to five seconds after several attempts.[25]

Thorndike suggests that previous experience with boxes makes a difference in the quickness with which the animal forms the associations. After getting out of six or eight boxes of different sorts, the cat's general tendency to claw at loose objects within the box is strengthened, and its tendency to bit and claw at the box weakened.

When dogs were used in place of cats, it was found that efforts to escape were not nearly so strenuous, and they gave up the attempt sooner than the cat if unsuccessful. Too, the dog's interest was not centered so much on the confinement as on the food. These experiments may not be on cat and dog levels, but they seem to point out that the animals are able to profit by their past experience, and thus indicate learning.

When the attention is turned to the monkeys and higher apes, much more interesting material is available. In the first place, the use which the monkey has of its hands makes a greater scope of activity possible than is found in the lower animals already discussed.

When three monkeys were observed, it was found that two of them were right handed and one left. That is, when food was held over their heads within as easy reach of one hand as the other, two showed a tendency to use the right hand and one the left. The training was then to teach each individual to use the opposite hand than that which he ordinarily employed. Food again was held as accessible to one hand as the other. When attempts were made to grasp it with the usual hand, the food was withdrawn, then offered again. "A" made twenty-six attempts with the right hand before trying the left, and, although hungry, at times stopped several minutes between attempts. After once using the left, however, he learned during the next eighty-eight trials to use it exclusively, and on the following four days, continued without making a single mistake. These results are typical of those obtained with the other two individuals.

In the matter of retention, there seems to be some individual difference. When tested four months after the training ceased, "A" showed a complete reversion to his original right handedness; "B" showed very good retention, making but three errors in one hundred twenty-five trials, while "C" made thirty errors in the same number of trials. When three other individuals were tested at the end of three months, very good retention was evidenced.[26]

Any discussion of this type on animal learning would not be complete without some mention of the classic work of Köhler, in his "Mentality of Apes." This book is full of experiments which show different types of learning, and mental processes in the higher apes. Of this material we will mention one instance.

A string was tied from one of the bars of the cage to a box out in front, making about a ninety degree angle with the cage. About half way out, and just beyond the reach of the animal, a banana was tied. At first, the Chimpanzee tried to reach the fruit. Failing in this, a gentle pull was made on the string, followed by a harder pull which broke the string so that the banana could be pulled into the cage and eaten. When a stronger string was used, and the animal was unable to break it, there occurred hand over hand movements down the cage, pulling the string in until the banana came within reach.[27]

In this case, we cannot deny that the animal was quick to see the situation, and adopt the appropriate reactions to obtain the desired results. This very nearly approaches rational behavior as found in man.

Conclusion

In spite of the experimental evidence which has been presented with regard to the ability of lower organisms to modify their behavior, there are very few generalizations which can be safely made on animal learning.

The experimental works reported seem

to show there are evidences of learning all along the animal scale from the protozoa on up. However, it is very difficult to make any comparisons because of the differences in the method and apparatus which were necessitated by the nature of the various animals studied. If it had been possible to use the same situation for all the animals, then we would have definite basis for saying that the snail is more highly developed than the amoeba, that it learns more rapidly, and so forth. However, such was not the case, and no such generalizations are justified.

While this cannot be laid down as a hard and fast rule, and there are doubtless many irregularities, it neverthless seems to be a fact that retentive power increases as we go up the scale. At least, there was rather conclusive proof that power of retention was slight in the protozoa and lower metazoa, and we find this power well evidenced in many of the higher organisms.

Another rather interesting fact is that within a given species, there was evidence of individual differences. This appeared in the paramecium and practically all cases where more than one individual was used and comparison could be made. So, in lower animals as in boys and girls, we seem to have "bright" individuals and "dull" ones.

The principal conclusion which we may draw, and the one which we set out to investigate, is that on the basis of the experimental evidence which we have presented, it seems safe to say that animals, from the once-celled stage on up, show ability to modify their behavior in light of past experience. Hence, we may say that animals learn.

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News Items from Here and There

News items and announcements for this section of the magazine should be addressed to the editor of the magazine. News which will be of interest to the fraternity in general is requested. What are you doing in your institution? If it is unique or particularly significant, send a brief, newsy report of it to the editor.

Eight $1,000.00 Fellowships and Eight Tuition Scholarships Available in Educational Sociology

The sum of $36,000.00 has been made available to the Department of Educational Sociology of the School of Education of New York University for a three-year study of the effect of a boys' club program upon a local community, and its boy problems in New York City.

The director of the study will be Frederic M. Thrasher, Ph.D., author of *The Gang: A Study of 1,313 Gangs in Chicago*, and assistant professor of Educational Sociology in the New York University School of Education. An advisory council will be composed of experts in this field of research.

The investigation will be unique in that it will attempt a complete community case-study in which all factors will be considered in their interrelationships, normal as well as pathological. A recently established boys' club (with a total capacity of 9,000 boys) will be used as a laboratory for the study and the problems of the community will be investigated before the development of the club and during the first three years of its program.

Eight $1,000.00 fellowships (payable in monthly installments) and eight scholarships will be available each year for the three-year period to senior and graduate students interested in participating in this study and in receiving degrees in the field of educational sociology. Appointments will be made for one year only with the anticipation of renewing appointments to successful candidates who show ability in this type of research. Appointments will be made on the basis of applicants' record in academic work or research and recommendations from competent sources.

Write at once for application blanks or further information to Professor Frederic M. Thrasher, Director of the Boys' Club Study, Department of Educational Sociology, New York University, School of Education, 100 Washington Square East, New York City.

Alpha Kappa Chapter

The Alpha Kappa Chapter, University of Tennessee, is especially proud of its roster for the present year on account of the versatility of the individual members. Included on the list is Everett Derryberry, recently awarded the Rhodes Scholarship from Tennessee, and accorded national recognition because of the fact that he is not only an outstanding student but is also a crack athlete and member of the Varsity football squad. Two other Phi Delta Kappans won recognition in football, John Barnhill, Captain and All-Southern Guard on the undefeated Tennessee team, and Hobe Hooser.

In scholarship, the chapter boasts of six men who were elected to Phi Kappa Phi Honor Society: Brimm Colebank, Derryberry, Looney, Paschal and Revelle. Paschal, who was Secretary of the Chapter, completed his collegiate work this term and is entering at once upon a responsible position as County Agricultural Agent.

Colebank and Looney, also majoring in Agricultural Education, achieved distinction by being on the prize winning Judging Team, representing Tennessee at the National Dairy Show. Ralph McDade, President of the Chapter, is also President of the University Y.M.C.A., a member of the All Students' Council, and a leader in student activities. With men of this type going into educational activities and fostering the principles of Phi Delta Kappa, the future is certainly bright.

Phi Delta Kappa at the Inland Empire

Thad Byrne, Alpha Gamma

A feature of the thirtieth annual session of the Inland Empire Education Association, held in Spokane on April 4, 5 and 6, 1928, was the Phi Delta Kappa Breakfast, enjoyed by about seventy members, on Thursday, April 5. The affair was given in the Elizabethan room of the Davenport

hotel, at 8 a.m., by members of the educational fraternity in honor of Dr. William McAndrew, of Chicago.

Superintendent B. A. Winans, of Livingstone, Montana, acted as master of ceremonies, while the secretary was W. H. Grayum, Superintendent of Schools at Puyallup, Washington.

Three speakers discussed the cardinal aims of Phi Delta Kappa, one being assigned to each aim. The first, Dr. Harl R. Douglass, University of Oregon, took up Research. He attacked the complacency with which we regard certain traditional educational standards, and stated that educators should not accept any pedagogical theory as fixed and one of perpetual truth. The plan of homogeneous grouping was one theory he gave as an example.

Speaking on the topic "Leadership," Dr. M. J. Elrod, Dean at the University of Montana, and President of the I. E. E. A. for the year 1927-8, reminisced delightfully of his early experiences in trying to be a leader of an English lad, newly arrived in the wilds of Montana, from England.

The principal address of the morning was given by Dr. William McAndrew, of Chicago. He was fittingly introduced by Leo Baisden, Superintendent of Schools at Longview, Washington, "the youngest city in the world."

Dr. McAndrew, who was also the featured speaker at all of the general sessions of the Inland Empire meeting, spoke informally of his ideas and ideals of "Service." He decried, with gentle humor, the present-day tendency toward subserviency to titles and positions.

Upholding the dignity of the plain, old-fashioned appellation of "mister," he took the opportunity, toward the close of his address, to initiate all those present into the "Society for the Promotion of the Use of the Word 'Mister'."

In a short business meeting at the close of the program, Dr. C. W. Stone, State College of Washington, was elected president of the Inland Empire Phi Delta Kappa Association for the ensuing year, and Superintendent H. A. Ellis, of Colfax, Washington, was chosen secretary. This Inland Empire Association includes all Phi Delta Kappans, both active and field members, in the four Pacific Northwest states of Montana, Idaho, Washington and Oregon.

Theta Chapter Entertains

Dr. Frank D. Boynton, Superintendent of Schools at Ithaca, New York, and President of the Department of Superintendence of the N. E. A., was entertained by Theta Chapter on May 10 in recognition of his election to the leadership of the Department of Superintendence. Forty members of Phi Delta Kappa and a number of invited guests from the Cornell faculty, including representatives from several colleges, were present.

Prof. Clyde B. Moore was toastmaster. E. L. Austin, president of Theta Chapter of Phi Delta Kappa, spoke briefly concerning the common ideals and purposes of the Department of Superintendence, of which Dr. Boynton is president, and of the fraternity. Mr. Austin expressed to Dr. Boynton the good wishes of the fraternity.

Dean R. M. Ogden, of the College of Arts and Sciences, extended the felicitations of his college to the honor guest of the evening. Dr. Ogden emphasized the fact that all educational institutions must take into consideration legitimate criticisms and be somewhat influenced by them.

Dean V. A. Moore, of the Veterinary College, recalled many experiences which he had had as a member of the local Board of Education in association with Dr. Boynton and commended especially the fact that as superintendent of schools Dr. Boynton had always stood firmly for those educational policies which he was convinced were right.

Prof. Julian E. Butterworth, chairman of the University Division of Education, represented his colleagues of the division. Dr. Butterworth pointed out the fact that the Department of Superintendence has undergone a remarkable growth in numbers and in professional leadership in recent years. He referred to the splendid work which special committees are carrying on in the field of public education, mentioning particularly the annual yearbooks of the department. Dr. Butterworth concluded by congratulating Dr. Boynton upon his election to the presidency of an organization which is achieving so much in the field of education.

Professor Moore introduced Dr. Boynton in terms appreciative of the latter's service in the cause of education in Ithaca and in the nation. Dr. Boynton spoke in an interesting manner concerning those phases of American education in which he is par-

ticularly interested. He discussed at some length the problem of articulation of the various educational units, college entrance requirements, and the responsibility of the college for the student after his admission. In concluding, Dr. Boynton expressed his appreciation of the honor accorded him by the Phi Delta Kappa fraternity and announced the slogan for the Department of Superintendence during the coming year as "The Next Forward Step."

Third Year Book

The Chicago Principals' Club is a professional organization composed of principals of the Chicago Public Schools. We are told that the Third Yearbook to be published by the Club is soon to appear. The Yearbook will be composed of three cooperative studies and several other studies by individual members of the Club. One part will consist of a critical classification of fifth-grade reading material. Another cooperative study will consist of an analysis of the character of a superior teacher and of a "just satisfactory" teacher, as judged by the principals of the city. In this study each principal has chosen a superior and a "just satisfactory" teacher from his school, and, by the use of an analytical check list of several hundred items, has selected the characteristics of these teachers. The third cooperative study in this Yearbook consists of a classification and gradation of problems in 6A mathematics. Thirty-one principals and thirty-one schools in the Chicago school system have cooperated in this study.

The Second Yearbook consisted of a cooperative study and certain other studies by individuals. The cooperative study was a critical classification of fourth-grade reading material. The cooperative study of the First Yearbook is a study of pupil failures in the system.

The Education Committee of the Principals' Club is entirely responsible for the Yearbooks which have appeared. The publication of Yearbooks was first undertaken as a means of supplying desirable information to the members of the Club, but the Yearbooks have been in such demand that they have been made available for purchase by those who desire to secure them. Cooperative service research is emphasized in each Yearbook although each number has contained other articles. Further information concerning the Yearbooks may be secured from the Executive Secretary of the Chicago Principals' Club, which is located at 315 Plymouth Court, Chicago, Illinois. Mr. E. L. Keezel (Zeta) is the Executive Secretary. A few copies of the First and Second Yearbooks are available for purchase at 75 cents per copy. The Third Yearbook may also be secured at that price.

Have You Changed Your Address?

It is important that a change of address be promptly forwarded to (1) your chapter secretary and (2) the national secretary.

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***Addresses marked by an asterisk are permanent chapter addresses**

Life Membership

Members who so desire may become Life Members at any time on payment of a fee of Fifty Dollars ($50.00). The amount of this fee shall be held in trust by the National organization and the sum of One Dollar ($1.00) per year shall be returned annually to the active chapter during the life of the member. At the death of the life member the fifty dollars shall revert to a permanent endowment fund and the income therefrom shall go into the general fund.

Phi Delta Kappa Constitution, Art. VII, Sec. (2c)

Have you sent the change of address notice to the National Secretary and to your own chapter secretary?